

SeqListing(1038-10-US).ST25.txt
SEQUENCE LISTING

<110> Parrington, Mark
Klein, Michel H

<120> Alphavirus Vectors

<130> 1038-10-US-PCT

<140> US 09/554,333

<141> 2000-08-07

<150> PCT/CA98/01065

<151> 1998-11-13

<150> US 60/065,793

<151> 1997-11-14

<160> 14

<170> PatentIn version 3.2

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<211> 576

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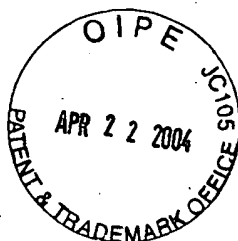
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SeqListing(1038-10-US).ST25.txt

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SeqListing(1038-10-US).ST25.txt

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| cttccgattg | tggccgtcgc | atttagcaag | tgggcgaggg | aatacaaggc | agaccttgat | 1020 |
| gatgaaaaac | ctctgggtgt | ccgagagagg | tcacttactt | gctgctgctt | gtgggcattt | 1080 |
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| ctgactagag | aagccttacc | acccctcgtc | cccatcgcg | cgccggagac | gggagtcgtc | 1380 |
| gacgtcgacg | ttgaagaact | agagtatcac | gcagggtgcag | gggtcggtga | aacacctcg | 1440 |
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| tccccgcaga | ccgtgctcaa | gagctccaag | ttggccccc | tgcaccctct | agcagagcag | 1560 |
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| actgacgccg | agtacgtggt | cgacgtagat | aaaaaatgct | gcgtcaagag | agaggaagcg | 1860 |
| tcgggtttgg | tggttggtgg | agagctaacc | aaccccccg | tccatgaatt | cgcctacgaa | 1920 |
| gggctgaaga | tcaggccgtc | ggcaccatat | aagactacag | tagtaggagt | ctttgggggt | 1980 |
| ccgggatcag | gcaagtctgc | tattattaag | agcctcgtga | ccaaacacga | tctgggtcacc | 2040 |
| agcggcaaga | aggagaactg | ccaggaaata | gttaacgacg | tgaagaagca | ccgcgggaag | 2100 |
| gggacaagta | gggaaaacag | tgactccatc | ctgctaaacg | ggtgtcgtcg | tgccgtggac | 2160 |
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| cttggttaaac | ctcggagcaa | agtgggtgta | tgccggagacc | ccaagcaatg | cggattcttc | 2280 |
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| gaagaatggc | aagaagaaca | cgacaaaata | atgaagggtga | ttgaaggacc | ggctgcgcct | 2820 |
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| gacactgccg | gaatcagatt | gacagcagag | gagtggagca | ccataattac | agcatttaag | 2940 |
| gaggacagag | cttactctcc | agtgggtggcc | ttgaatgaaa | tttgacacaa | gtactatgga | 3000 |
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SeqListing(1038-10-US).ST25.txt

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| ggagggccgg cggttaccag gtgcacggat atgacggcag ggtcctacta ccatgtggat | 1920 |
| cggccattcc ggtccctgag tttcaagctt tgagcgagag cgccactatg gtgtacaacg | 1980 |
| aaaggaggtt cgtcaacagg aaactatacc atattgccgt tcacggaccg tcgctgaaca | 2040 |
| ccgacgagga gaactacgag aaagtcagag ctgaaagaac tgacgccgag tacgtgttcg | 2100 |
| acgtagataa aaaatgctgc gtcaagagag aggaagcgtc gggtttggtg ttggtgggag | 2160 |
| agctaaccaa cccccgttc catgaattcg cctacgaagg gctgaagatc aggccgtcgg | 2220 |
| caccatataa gactacagta gtaggagtct ttggggttcc gggatcaggc aagtctgcta | 2280 |
| ttattaagag cctcgtgacc aaacacgacg tggtcaccag cggcaagaag gagaactgcc | 2340 |
| aggaaatagt taacgacgtg aagaagcacc gcgggaaggg gacaagtagg gaaaacagtg | 2400 |
| actccatcct gctaaacggg tgctcgtcgt cctgggacat cctatatgtg gacgaggctt | 2460 |
| tcgcttgcca ttccggtact ctgctggccc taattgctct tggttaaact cgagagcaaag | 2520 |
| tggtgttatg cggagacccc aagcaatgcg gattcttcaa tatgatgcag cttaagggtga | 2580 |
| acttcaacca caacatctgc actgaagtat gtcataaaaag tatatccaga cgttgcacgc | 2640 |
| gtccagtcac ggccatcgtg tctacgttgc actacggagg caagatgcgc acgaccaacc | 2700 |
| cgtgcaacaa acccataatc atagacacca caggacagac caagcccaag ccaggagaca | 2760 |
| tcgtgttaac atgcttccga ggctgggcaa agcagctgca gttggactac cgtggacacg | 2820 |
| aagtcatgac agcagcagca tctcagggcc tcacccgcaa aggggtatac gccgtaaggc | 2880 |
| agaagggtgaa tgaaaatccc ttgtatgccc ctgcgtcggg gcacgtgaat gtactgctga | 2940 |

SeqListing(1038-10-US).ST25.txt

| | | | | | | |
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| tatcaaacat | tccacagggt | aactttacgg | ccacattgga | agaatggcaa | gaagaacacg | 3060 |
| acaaaataat | gaaggtgatt | gaaggaccgg | ctgcgcctgt | ggacgcgttc | cagaacaaag | 3120 |
| cgaacgtgtg | ttgggcaaaa | agcctggtgc | ctgtcctgga | cactgccgga | atcagattga | 3180 |
| cagcagagga | gtggagcacc | ataattacag | catttaagga | ggacagagct | tactctccag | 3240 |
| tggtggcctt | gaatgaaatt | tgcaccaagt | actatggagt | tgacctggac | agtggcctgt | 3300 |
| tttctgcccc | gaaggtgtcc | ctgtattacg | agaacaacca | ctgggataac | agacctgggtg | 3360 |
| gaaggatgta | tggattcaat | gccgcaacag | ctgccaggct | ggaagctaga | cataccttcc | 3420 |
| tgaaggggca | gtggcatacg | ggcaagcagg | cagttatcgc | agaaagaaaa | atccaaccgc | 3480 |
| tttctgtgct | ggacaatgta | attcctatca | accgcaggct | gccgcacgcc | ctggtggctg | 3540 |
| agtacaagac | ggttaaaggc | agtaggggtg | agtggctggt | caataaagta | agaggggtacc | 3600 |
| acgtcctgct | ggtgagttag | tacaacctgg | ctttgcctcg | acgcagggtc | acttggttgt | 3660 |
| caccgctgaa | tgtcacaggc | gccgataggt | gctacgacct | aagttagga | ctgccggctg | 3720 |
| acgccggcag | gttcgacttg | gtctttgtga | acattcacac | ggaattcaga | atccaccact | 3780 |
| accagcagtg | tgtcgaccac | gccatgaagc | tgcagatgct | tgggggagat | gcgctacgac | 3840 |
| tgctaaaacc | cggcggcatc | ttgatgagag | cttacggata | cgccgataaa | atcagcgaag | 3900 |
| ccgttgtttc | ctccttaagc | agaaagttct | cgtctgcaag | agtgttgccg | ccggattgtg | 3960 |
| tcaccagcaa | tacagaagtg | ttcttgctgt | tctccaactt | tgacaacgga | aagagaccct | 4020 |
| ctacgctaca | ccagatgaat | accaagctga | gtgccgtgta | tgccggagaa | gccatgcaca | 4080 |
| cggccgggtg | tgcaccatcc | tacagagtta | agagagcaga | catagccacg | tgcacagaag | 4140 |
| cggctgtggt | taacgcagct | aacgcccgtg | gaactgtagg | ggatggcgta | tgcagggccg | 4200 |
| tggcgaagaa | atggccgtca | gcctttaagg | gagcagcaac | accagtgggc | acaattaaaa | 4260 |
| cagtcagtgt | cggctcgtac | cccgtcatcc | acgctgtagc | gcctaatttc | tctgccacga | 4320 |
| ctgaagcgga | aggggaccgc | gaattggccg | ctgtctaccg | ggcagtggcc | gccgaagtaa | 4380 |
| acagactgtc | actgagcagc | gtagccatcc | cgctgctgtc | cacaggagtg | ttcagcggcg | 4440 |
| gaagagatag | gctgcagcaa | tcctcaacc | atctattcac | agcaatggac | gccacggacg | 4500 |
| ctgacgtgac | catctactgc | agagacaaaa | gttgggagaa | gaaaatccag | gaagccattg | 4560 |
| acatgaggac | ggctgtggag | ttgctcaatg | atgacgtgga | gctgaccaca | gacttggtga | 4620 |
| gagtgcaccc | ggacagcagc | ctgggtgggtc | gtaagggcta | cagtaccact | gacgggtcgc | 4680 |

SeqListing(1038-10-US).ST25.txt

| | | | |
|------------------------|------------------------|-----------------------|------|
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| tgacgttggtg gccagactg | caagaggcaa acgaacagat | atgcctatac gcgctggg | 4800 |
| aaacaatgga caacatcaga | tccaaatgtc cggatgaacga | ttccgattca tcaacacctc | 4860 |
| ccaggacagt gccctgcctg | tgccgctacg caatgacagc | agaacggatc gcccgctta | 4920 |
| ggtcacacca agttaaagc | atgggtggtt gctcatcttt | tcccctcccg aaataccatg | 4980 |
| tagatggggt gcagaaggta | aagtgcgaga aggttctcct | gttcgacccg acggtacctt | 5040 |
| cagtggtttag tccgcggaag | tatgccgcac ctacgacgga | ccactcagat cggtcggtac | 5100 |
| gagggtttga cttggactgg | accaccgact cgtcttccac | tgccagcgat accatgtcgc | 5160 |
| taccagttt gcagtcgtgt | gacatcgact cgatctacga | gccaatggct cccatagtag | 5220 |
| tgacggctga cgtacaccct | gaaccgcgag gcatcgcgga | cctggcggca gatgtgcacc | 5280 |
| ctgaaccgc agaccatgtg | gacctcgaga acccgattcc | tccaccgcgc ccgaagagag | 5340 |
| ctgcatacct tgccctccgc | gcggcggagc gaccggtgcc | ggcgccgaga aagccgacgc | 5400 |
| ctgccccaa gactgcgttt | aggaacaagc tgcctttgac | gttcggcgac tttgacgagc | 5460 |
| acgaggtcga tgcgttgcc | tccgggatta ctttcggaga | cttcgacgac gtcctgcgac | 5520 |
| taggccgcgc ggggtcatat | attttctcct cggacactgg | cagcggacat ttacaacaaa | 5580 |
| aatccgttag gcagcacaat | ctccagtgcg cacaactgga | tgcggtccag gaggagaaaa | 5640 |
| tgtaccgcgc aaaattggat | actgagaggg agaagctgtt | gctgctgaaa atgcagatgc | 5700 |
| acccatcgga ggctaataag | agtcgatacc agtctcgcaa | agtggagaac atgaaagcca | 5760 |
| cgggtggtgga caggctcaca | tccggggcca gattgtacac | gggagcggac gtaggccgca | 5820 |
| taccaacata cgcgggttcg | tacccccgcc ccgtgtactc | ccctaccgtg atcgaaagat | 5880 |
| tctcaagccc cgatgtagca | atcgacagct gcaacgaata | cctatccaga aattacccaa | 5940 |
| cagtggcgtc gtaccagata | acagatgaat acgacgcata | cttgacatg gttgacgggt | 6000 |
| cggatagttg cttggacaga | gcgacattct gcccgcgaa | gctccggtgc taccgaaac | 6060 |
| atcatgcgta ccaccagccg | actgtacgca gtgccgtccc | gtcacccttt cagaacacac | 6120 |
| tacagaacgt gctagcggcc | gccaccaaga gaaactgcaa | cgtcacgcaa atgcgagaac | 6180 |
| taccacccat ggactcggca | gtgttcaacg tggagtgtt | caagcgctat gcctgctccg | 6240 |
| gagaatattg ggaagaatat | gctaaacaac ctatccggat | aaccactgag aacatcacta | 6300 |
| cctatgtgac caaattgaaa | ggcccgaag ctgctgcctt | gttcgctaag acccacaact | 6360 |
| tggttccgct gcaggaggtt | cccatggaca gattcacggt | cgacatgaaa cgagatgtca | 6420 |

SeqListing(1038-10-US).ST25.txt

| | | | | | | |
|-------------|------------|-------------|-------------|-------------|------------|------|
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| eggagccatt | ggcgaccgct | tacctgtgcg | gcatccacag | ggaattagta | aggagactaa | 6540 |
| atgctgtgtt | acgccctaac | gtgcacacat | tgtttgatat | gtcggccgaa | gactttgacg | 6600 |
| cgatcatcgc | ctctcacttc | cacccaggag | acccggttct | agagacggac | attgcatcat | 6660 |
| tcgacaaaag | ccaggacgac | tccttggttc | ttacagggtt | aatgatcctc | gaagatctag | 6720 |
| gggtggatca | gtacctgctg | gacttgatcg | aggcagcctt | tggggaaata | tccagctgtc | 6780 |
| acctaccaac | tggcacgcgc | ttcaagttcg | gagctatgat | gaaatcgggc | atgtttctga | 6840 |
| ctttgtttat | taacactgtt | ttgaacatca | ccatagcaag | cagggtactg | gagcagagac | 6900 |
| tcactgactc | cgctgtgctg | gccttcacgc | gcgacgacaa | catcgttcac | ggagtgatct | 6960 |
| ccgacaagct | gatggcggag | aggtgcgcgt | cgtgggtcaa | catggagggtg | aagatcattg | 7020 |
| acgctgtcat | ggcgaaaaaa | cccccatatt | tttgtggggg | attcatagtt | tttgacagcg | 7080 |
| tcacacagac | cgctgcccgt | gtttcagacc | cacttaagcg | cctgttcaag | ttgggtaagc | 7140 |
| cgctaacagc | tgaagacaag | caggacgaag | acaggcgacg | agcactgagt | gacgaggtta | 7200 |
| gcaagtgggt | ccggacaggc | ttggggggccg | aactggagggt | ggcactaaca | tctaggtatg | 7260 |
| aggtagaggg | ctgcaaaagt | atcctcatag | ccatggccac | cttggcgagg | gacattaagg | 7320 |
| cgtttaagaa | attgagagga | cctgttatac | acctctacgg | cggtcctaga | ttggtgcgtt | 7380 |
| aatacacaga | attctgattg | gatcatagcg | cactattata | ggatccagat | cccgggtaat | 7440 |
| taattgaatt | acatccctac | gcaaacgttt | tacggccgcc | ggtggcgccc | gcgcccggcg | 7500 |
| gcccgtcctt | ggccgttgca | ggccactccg | gtggctcccc | tcgtccccga | cttccaggcc | 7560 |
| cagcagatgc | agcaactcat | cagcgccgta | aatgcgctga | caatgagaca | gaacgcaatt | 7620 |
| gctcctgcta | ggcctcccaa | accaaagaag | aagaagacaa | ccaaaccaa | gccgaaaacg | 7680 |
| cagcccaaga | agatcaacgg | aaaaacgcag | cagcaaaaga | agaaagacaa | gcaagccgac | 7740 |
| aagaagaaga | agaaacccgg | aaaaagagaa | agaatgtgca | tgaagattga | aaatgactgt | 7800 |
| atcttcgtat | gcggctagcc | acagtaacgt | agtgtttcca | gacatgtcgg | gcaccgcact | 7860 |
| atcatgggtg | cagaaaatct | cggttggtct | gggggccttc | gcaatcggcg | ctatcctggt | 7920 |
| gctggttggtg | gtcacttgca | ttgggtctccg | cagataagtt | agggtaggca | atggcattga | 7980 |
| tatagcaaga | aaattgaaaa | cagaaaaagt | tagggtaagc | aatggcatat | aaccataact | 8040 |
| gtataacttg | taacaaagcg | caacaagacc | tgcgcaattg | gccccgtggt | ccgcctcacg | 8100 |
| gaaactcggg | gcaactcata | ttgacacatt | aattggcaat | aattggaagc | ttacataagc | 8160 |

SeqListing(1038-10-US).ST25.txt

| | |
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| aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa | 8280 |
| aaaaaaaaact agtctgcatt aatgaatcgg ccaacgcgcg gggagaggcg gtttgcgtat | 8340 |
| tgggcgctct tccgcttcct cgctcactga ctcgctgcgc tcggctcgctt ggctgcggcg | 8400 |
| agcggtatca gctcactcaa aggcggtaat acggttatcc acagaatcag gggataacgc | 8460 |
| aggaaagaac atgtgagcaa aaggccagca aaaggccagg aaccgtaaaa aggccgcgctt | 8520 |
| gctggcgctt ttccataggc tccgcccccc tgacgagcat cacaaaaatc gacgctcaag | 8580 |
| tcagaggtgg cgaaacccga caggactata aagataccag gcgtttcccc ctggaagctc | 8640 |
| cctcgctgcgc tctcctgttc cgaccctgcc gcttaccgga tacctgtccg cttttctccc | 8700 |
| ttcgggaagc gtggcgcttt ctcaatgctc gcgctgtagg tatctcagtt cgggtgtaggt | 8760 |
| cgttcgctcc aagctgggct gtgtgcacga accccccgct cagcccgacc gctgcgcctt | 8820 |
| atccggtaac tatcgtcttg agtccaaccc ggtaagacac gacttatcgc cactggcagc | 8880 |
| agccactggc aacaggatta gcagagcgag gtatgtaggc ggtgctacag agttcttgaa | 8940 |
| gtgggtggct aactacggct aactagaag gacagtattht ggtatctgcg ctctgctgaa | 9000 |
| gccagttacc ttcggaaaaa gagttggtag ctcttgatcc ggcaaaaaa ccaccgctgg | 9060 |
| tagcgggtgg ttttttgctt gcaagcagca gattacgcgc agaaaaaaag gatctcaaga | 9120 |
| agatcctttg atcttttcta cggggtctga cgctcagtg aacgaaaact cacgttaagg | 9180 |
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| gataccgcga gaccacgct caccggctcc agatttatca gcaataaacc agccagccgg | 9480 |
| aagggccgag cgcagaagtg gtcttgcaac tttatccgcc tccatccagt ctattaattg | 9540 |
| ttgccgggaa gctagagtaa gtagttcgcc agttaatagt ttgcgcaacg ttgttgccat | 9600 |
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| agcactgcat aattctctta ctgtcatgcc atccgtaaga tgcttttctg tgactgggtga | 9840 |
| gtactcaacc aagtcattct gagaatagtg tatgcggcga ccgagttgct cttgcccggc | 9900 |

SeqListing(1038-10-US).ST25.txt

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 <213> Artificial

<220>
 <223> Linker

<400> 5
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27

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 <212> DNA
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SeqListing(1038-10-US).ST25.txt

<220>

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27

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31

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<211> 31

<212> DNA

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<400> 8

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31

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<211> 86

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<220>

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90

SeqListing(1038-10-US).ST25.txt

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 aatggcccgcc ctctgaccg cccaacgacc cccgcccatt gacgtcaata atgacgtatg 240
 ttcccatagt aacgccaaata gggactttcc attgacgtca atgggtggag tattttacgg 300
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 tccgggaagg tgctggatag agagatcgca ggaaaaatca ccgacctgca gaccgtcatg 1140
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SeqListing(1038-10-US).ST25.txt

| | |
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| ttccacctga aaggtaaaca atcctttacc tgtaggtgcg ataccatcgt atcatgtgaa | 1620 |
| gggtacgtag ttaagaaaat cactatgtgc cccggcctgt acggtaaaac ggtagggtag | 1680 |
| gccgtgacgt atcacgcgga gggattccta gtgtgcaaga ccacagacac tgtcaaagga | 1740 |
| gaaagagtct cattccctgt atgcacctac gtccctcaa ccatctgtga tcaaagtact | 1800 |
| ggcatactag cgaccgacgt cacaccggag gacgcacaga agttgttagt gggattgaat | 1860 |
| cagaggatag ttgtgaacgg aagaacacag cgaaacacta acacgatgaa gaactatctg | 1920 |
| cttccgattg tggccgtcgc atttagcaag tggcgaggg aatacaaggc agaccttgat | 1980 |
| gatgaaaaac ctctgggtgt ccgagagagg tcacttactt gctgctgctt gtgggcattt | 2040 |
| aaaacgagga agatgcacac catgtacaag aaaccagaca ccagacaat agtgaagggtg | 2100 |
| ccttcagagt ttaactcgtt cgtcatcccg agcctatggc ctacaggcct cgcaatccca | 2160 |
| gtcagatcac gcattaagat gcttttggcc aagaagacca agcgagagtt aatacctgtt | 2220 |
| ctcgacgcgt cgtcagccag ggatgctgaa caagaggaga aggagaggtt ggaggccgag | 2280 |
| ctgactagag aagccttacc acccctcgtc cccatcgcgc cggcgagagc gggagtcgtc | 2340 |
| gacgtcgacg ttgaagaact agagtatcac gcagggtgcag gggtcgtgga aacacctcgc | 2400 |
| agcgcggtga aagtcaccgc acagccgaac gacgtactac taggaaatta cgtagttctg | 2460 |
| tccccgcaga ccgtgctcaa gagctccaag ttggcccccg tgcacctct agcagagcag | 2520 |
| gtgaaaataa taacacataa cgggagggcc ggcggttacc aggtcgacgg atatgacggc | 2580 |
| agggtcctac taccatgtgg atcgggcatt cgggtccctg agtttcaagc tttgagcgag | 2640 |
| agcgccacta tgggtgtacaa cgaaagggag ttcgtcaaca ggaaactata ccatattgcc | 2700 |
| gttcacggac cgtcgtgaa caccgacgag gagaactacg agaaagtcag agctgaaaga | 2760 |
| actgacgccg agtacgtgtt cgacgtagat aaaaaatgct gctcaagag agaggaagcg | 2820 |
| tcggggttgg tgttggtggg agagctaacc aacccccgt tccatgaatt cgcctacgaa | 2880 |
| gggctgaaga tcaggccgtc ggcaccatat aagactacag tagtaggagt ctttggggtt | 2940 |
| ccgggatcag gcaagtctgc tattattaag agcctcgtga ccaaacacga tctggtcacc | 3000 |
| agcggcaaga aggagaactg ccaggaaata gttaacgacg tgaagaagca ccgcgggaag | 3060 |
| gggacaagta gggaaaacag tgactccatc ctgctaaacg ggtgtcgtcg tgccgtggac | 3120 |
| atcctatatg tggacgaggc tttcgcttgc cattccggtg ctctgctagc cctaattgct | 3180 |

SeqListing(1038-10-US).ST25.txt

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| aatatgatgc | agcttaaggt | gaacttcaac | cacaacatct | gcactgaagt | atgtcataaa | 3300 |
| agtatatcca | gacgttgac | gcgtccagtc | acggccatcg | tgtctacgtt | gcactacgga | 3360 |
| ggcaagatgc | gcacgaccaa | cccgtgcaac | aaaccataa | tcatagacac | cacaggacag | 3420 |
| accaagccca | agccaggaga | catcgtgta | acatgcttcc | gaggctgggc | aaagcagctg | 3480 |
| cagttggact | accgtggaca | cgaagtcag | acagcagcag | catctcaggg | cctcaccgcc | 3540 |
| aaaggggtat | acgccgtaag | gcagaaggtg | aatgaaaatc | ccttgtagtc | cctgcgtcg | 3600 |
| gagcacgtga | atgtactgct | gacgcgcact | gaggatagtc | tgggtgtggaa | aacgctggcc | 3660 |
| ggcgatccct | ggattaaggt | gagtttgggg | acccttgatt | gttctttctt | tttcgctatt | 3720 |
| gtaaaattca | tggtatatgg | agggggcaaa | gttttcaggg | tggtgttttag | aatgggaaga | 3780 |
| tgctccctgt | atcaccatgg | accctcatga | taattttgtt | tctttcactt | tctactctgt | 3840 |
| tgacaacat | tgtctcctct | tattttcttt | tcattttctg | taactttttc | gttaaacttt | 3900 |
| agcttgcat | tgtaacgaat | ttttaaattc | acttttgttt | atttgtcaga | ttgtaagtac | 3960 |
| tttctcta | cacttttttt | tcaaggcaat | cagggatat | tatattgtac | ttcagcacag | 4020 |
| ttttagagaa | caattgttat | aattaaatga | taaggtagaa | tatttctgca | tataaattct | 4080 |
| ggctggcgtg | gaaatattct | tattggtaga | aacaactaca | tcctggtcac | catcctgcct | 4140 |
| ttctctttat | ggttacaatg | atatacactg | tttgagatga | ggataaaata | ctctgagtc | 4200 |
| aaaccgggcc | cctctgctaa | ccatgttcac | gccttcttct | ttttcctaca | ggtcctatca | 4260 |
| aacattccac | agggtaaact | tacggccaca | ttggaagaat | ggcaagaaga | acacgacaaa | 4320 |
| ataatgaagg | tgattgaagg | accggctgcg | cctgtggacg | cgttccagaa | caaagcgaac | 4380 |
| gtgtgttggg | cgaaaagcct | ggtgcctgtc | ctggacactg | ccggaatcag | attgacagca | 4440 |
| gaggagtggg | gcaccataat | tacagcattt | aaggaggaca | gagcttactc | tccagtgggtg | 4500 |
| gccttgaatg | aaatttgac | caagtactat | ggagttgacc | tggacagtgg | cctgttttct | 4560 |
| gccccgaagg | tgccctgta | ttacgagaac | aaccactggg | ataacagacc | tgggtggaagg | 4620 |
| atgtatggat | tcaatgccgc | aacagctgcc | aggctggaag | ctagacatac | cttcctgaag | 4680 |
| gggcagtggc | atacgggcaa | gcaggcagtt | atcgagaaa | gaaaaatcca | accgctttct | 4740 |
| gtgctggaca | atgtaattcc | tatcaaccgc | aggctgccgc | acgccctggg | ggctgagtac | 4800 |
| aagacggtta | aaggcagtag | ggttgagtgg | ctggtcaata | aagtaagagg | gtaccacgtc | 4860 |
| ctgctgggtga | gtgagtacaa | cctggccttg | cctcgacgca | gggtcacttg | gttgtcaccg | 4920 |

SeqListing(1038-10-US).ST25.txt

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| cagtgtgtcg accacgccat gaagctgcag atgcttgggg gagatgcgct acgactgcta | 5100 |
| aaacccggcg gcatcttgat gagagcttac ggatacgccg ataaaaatcag cgaagccggt | 5160 |
| gtttcctcct taagcagaaa gttctcgtct gcaagagtgt tgcgcccga ttgtgtcacc | 5220 |
| agcaatacag aagtgttctt gctgttctcc aactttgaca acggaaagag accctctacg | 5280 |
| ctacaccaga tgaataccaa gctgagtgcc gtgtatgccg gagaagccat gcacacggcc | 5340 |
| gggtgtgcac catcctacag agttaagaga gcagacatag ccacgtgcac agaagcggct | 5400 |
| gtggttaacg cagctaacgc ccgtggaact gtaggggatg gcgtatgcag ggccgtggcg | 5460 |
| aagaaatggc cgtcagcctt taagggagca gcaacaccag tgggcacaat taaaacagtc | 5520 |
| atgtgcggct cgtaccccgct catccacgct gtagcgccta atttctctgc cacgactgaa | 5580 |
| gcggaagggg accgcgaatt ggccgctgtc taccgggcag tggccgccga agtaaacaga | 5640 |
| ctgtcactga gcagcgtagc catcccgctg ctgtccacag gagtgttcag cggcgggaaga | 5700 |
| gataggctgc agcaatccct caaccatcta ttcacagcaa tggacgccac ggacgctgac | 5760 |
| gtgaccatct actgcagaga caaaagttgg gagaagaaaa tccaggaagc cattgacatg | 5820 |
| aggacggctg tggagtgtct caatgatgac gtggagctga ccacagactt ggtgagagtg | 5880 |
| cacccggaca gcagcctggg gggtcgtaag ggctacagta ccactgacgg gtcgctgtac | 5940 |
| tcgtactttg aaggtacgaa attcaaccag gctgctattg atatggcaga gatactgacg | 6000 |
| ttgtggccca gactgcaaga ggcaaacgaa cagatatgcc tatacgcgct gggcgaaaca | 6060 |
| atggacaaca tcagatccaa atgtccgggtg aacgattccg attcatcaac acctcccagg | 6120 |
| acagtgcctt gcctgtgccg ctacgcaatg acagcagaac ggatcgcccg ccttaggtca | 6180 |
| caccaagtta aaagcatggt ggtttgctca tcttttcccc tcccgaata ccatgtagat | 6240 |
| ggggtgcaga aggtaaagtg cgagaagggt ctctgttcg acccgacggt accttcagtg | 6300 |
| gttagtccgc ggaagtatgc cgcactctacg acggaccact cagatcggtc gttacgaggg | 6360 |
| tttgacttgg actggaccac cgactcgtct tccactgcca gcgataccat gtcgctaccc | 6420 |
| agtttgagcgt cgtgtgacat cgactcgatc tacgagccaa tggctcccat agtagtgacg | 6480 |
| gctgacgtac acctgaacc cgcaggcatc gcggacctgg cggcagatgt gcacctgaa | 6540 |
| cccgagacc atgtggacct cgagaacccg attcctccac cgcgcccga gagagctgca | 6600 |
| taccttgctt cccgcgcggc ggagcgaccg gtgcccggcg cgagaaagcc gacgcctgcc | 6660 |

SeqListing(1038-10-US).ST25.txt

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| gtcgatgcgt | tggcctccgg | gattactttc | ggagacttcg | acgacgtcct | gcgactaggg | 6780 | |
| cgcgcggggtg | catatatattt | ctcctcggac | actggcagcg | gacattttaca | acaaaaatcc | 6840 | |
| gttaggcagc | acaatctcca | gtgcgcacaa | ctggatgcgg | tccaggagga | gaaaatgtac | 6900 | |
| ccgccaaaat | tggatactga | gagggagaag | ctggttgctgc | tgaaaatgca | gatgcaccca | 6960 | |
| tcggaggcta | ataagagtcg | ataccagtct | cgcaaagtgg | agaacatgaa | agccacgggtg | 7020 | |
| gtggacaggc | tcacatcggg | ggccagattg | tacacgggag | cggacgtagg | ccgcatacca | 7080 | |
| acatacgcg | ttcgggtacc | ccgccccgtg | tactccccta | ccgtgatcga | aagattctca | 7140 | |
| agccccgatg | tagcaatcgc | agcgtgcaac | gaatacctat | ccagaaatta | cccaacagtg | 7200 | |
| gcgtcgtacc | agataacaga | tgaatacgac | gcatacttgg | acatggttga | cgggtcggat | 7260 | |
| agttgcttgg | acagagcgac | attctgcccc | gcgaagctcc | ggtgctaccc | gaaacatcat | 7320 | |
| gcgtaccacc | agccgactgt | acgcagtgcc | gtccccgtcac | cctttcagaa | cacactacag | 7380 | |
| aacgtgctag | cggccgccac | caagagaaac | tgcaacgtca | cgcaaatgcy | agaactaccc | 7440 | |
| accatggact | cggcagtggt | caacgtggag | tgcttcaagc | gctatgcctg | ctccggagaa | 7500 | |
| tattgggaag | aatatgctaa | acaacctatc | cggataacca | ctgagaacat | cactacctat | 7560 | |
| gtgaccaa | at | tgaaaggccc | gaaagctgct | gccttgcttcg | ctaagaccca | caacttggtt | 7620 |
| ccgctgcagg | aggttcccat | ggacagattc | acggtcgaca | tgaaacgaga | tgtcaaagtc | 7680 | |
| actccaggga | cgaaacacac | agaggaaaga | cccaaagtcc | aggtaattca | agcagcggag | 7740 | |
| ccattggcga | ccgcttacct | gtgcggcatc | cacagggaat | tagtaaggag | actaaatgct | 7800 | |
| gtgttacgcc | ctaacgtgca | cacattgttt | gatatgtcgg | ccgaagactt | tgacgcgatc | 7860 | |
| atcgctctc | acttccaccc | aggagaccgg | gttctagaga | cggacattgc | atcattcgac | 7920 | |
| aaaagccagg | acgactcctt | ggctcttaca | ggtttaatga | tcctcgaaga | tctaggggtg | 7980 | |
| gatcagtacc | tgctggactt | gatcgaggca | gcctttgggg | aaatatccag | ctgtcaccta | 8040 | |
| ccaactggca | cgcgcttcaa | gttcggagct | atgatgaaat | cgggcatggt | tctgactttg | 8100 | |
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| aagctgatgg | cggagaggtg | cgcgctcgtg | gtcaacatgg | aggtgaagat | cattgacgct | 8280 | |
| gtcatgggcy | aaaaaccccc | atatttttgt | gggggattca | tagtttttga | cagcgtcaca | 8340 | |
| cagaccgcct | gccgtgtttc | agaccactt | aagcgctgtg | tcaagttggg | taagccgcta | 8400 | |

SeqListing(1038-10-US).ST25.txt

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| gagggctgca aaagtatcct catagccatg gccaccttgg cgagggacat taaggcgttt | 8580 |
| aagaaattga gaggacctgt tatacacctc tacggcggtc ctagattggt gcgttaatac | 8640 |
| acagaattct gattggatca tagcgacta ttataggatc cagatcccgg gtaattaatt | 8700 |
| gaattacatc cctacgcaaa cgttttacgg ccgccggtgg cgcccgcgcc cggcggcccc | 8760 |
| tccttggccg ttgcaggcca ctccggtggc tcccgtcgtc cccgacttcc aggcccagca | 8820 |
| gatgcagcaa ctcatcagcg ccgtaaatgc gctgacaatg agacagaacg caattgctcc | 8880 |
| tgctaggcct cccaaaccaa agaagaagaa gacaacccaa ccaaagccga aaacgcagcc | 8940 |
| caagaagatc aacggaaaaa cgcagcagca aaagaagaaa gacaagcaag ccgacaagaa | 9000 |
| gaagaagaaa cccggaaaaa gagaaagaat gtgcatgaag attgaaaatg actgtatctt | 9060 |
| cgtatgcggc tagccacagt aacgtagtgt ttccagacat gtcgggcacc gcactatcat | 9120 |
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| ttgtggtcac ttgcattggg ctccgcagat aagttagggt aggcaatggc attgatatag | 9240 |
| caagaaaatt gaaaacagaa aaagttaggg taagcaatgg catataacca taactgtata | 9300 |
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| tcgacgaata attggatttt tattttattt tgcaattggt ttttaatat tccaaaaaa | 9480 |
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| gggtggggtg gggcaggaca gcaaggggga ggattgggaa gacaatagca ggcattgctg | 9840 |
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| ttatccgctc acaattccac acaacatacg agccggaagc ataaagtgt aagcctgggg | 10080 |
| tgccaatga gtgagctaac tcacattaat tgcgttgccg tccactgccc ctttccagtc | 10140 |

SeqListing(1038-10-US).ST25.txt

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SeqListing(1038-10-US).ST25.txt

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 <213> Artificial

<220>
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<400> 12
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<210> 13
 <211> 47
 <212> DNA
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<220>
 <223> Primer, SPV-5'-3

<400> 13
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<210> 14
 <211> 31
 <212> DNA
 <213> Artificial

SeqListing(1038-10-US).ST25.txt

<220>

<223> Primer, EcoR-SPE

<400> 14

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31